DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON, DC 20350-3000

NAVMC 3500.47
C 4610

JUN 18 2008

NAVMC 3500.47

From: Commandant of the Marine Corps
To: Distribution List

Subj: CH-53 T&R MANUAL

Ref: (a) NAVMC 3500.14 Ch 2

Encl: (1) CH-53 T&R MANUAL

1. Purpose. To publish standards and regulations regarding the training of CH-53 aircrew per the reference.

2. Information. Per reference (a), the Flight Leadership Standardization program has been added to Chapter 1 of this Manual. This program affects the Designation Tables and Instructor Requirements Tables on pages 1-12, 1-13 and 1-20. The Flight Leadership Standardization Evaluator Plan of Instruction (POI) has been added to paragraph 142, starting on page 1-109. Flight Leadership POIs, beginning with Section Leader, are contained in paragraph 150, starting on page 1-114.

3. Recommendations. Recommended changes to this publication are invited, and may be submitted via the syllabus sponsor (MAWTS-1) and the appropriate chain of command to: Commanding General, Training and Education Command, Aviation Training Branch via e-mail (refer to http://www.tecom.usmc.mil/atb/contacts .htm) or the Defense Message System using the following plain language address: CG TECOM QUANTICO VA ATB.

4. Reserve Applicability. This Manual is applicable to the Marine Corps Total Force.

5. Certification. Reviewed and approved this date.

M. G. SPIESE
By direction

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CHAPTER 1

CH-53 PILOT

FIGURE

*** * N O T E * ***

Aircrews shall include Crew Resource Management as part of their brief.

CHAPTER 1

CH-53 PILOT

100. MARINE HEAVY HELICOPTER SQUADRON (CH-53E) UNIT CORE COMPETENCY. Marine Aviation plays a crucial role in the MAGTF's ability to conduct Maneuver Warfare. The ultimate goal of Marine Aviation is to attain the highest possible combat readiness to support Expeditionary Maneuver Warfare while at the same time preserving and conserving our Marines and equipment. Embedded within our combat readiness is the ability to rapidly, effectively, and efficiently deploy on short notice and the ability to quickly and effectively plan for crises and/or contingency operations thereby ensuring Marine Aviation remains ready for combat when and where the need arises. The CH-53 T&R Manual represents the collaborative effort of CH-53 Subject Matter Experts who designed training standards to maximize the full combat capabilities of the CH-53 and its crew. These standards, intrinsic in the core competency section, describe and define unit capabilities and requirements necessary to maintain like-squadron proficiency in core skills and combat leadership. Training events are based on specific requirements and performance standards to ensure aircrew maintain a common base of training and depth of combat capabilities. Together, the T&R comprises a building block approach to ensure that trained aircrews remain ready, relevant, and fully capable of supporting the MAGTF commander.

1. HMH Mission. Support the MAGTF Commander by providing assault support transport of heavy equipment, combat troops, and supplies, day or night under all weather conditions during expeditionary, joint, or combined operations.

2. Mission Essential Task List (METL)

a. (UJTL TA 1.1.2) Conduct Shipboard Deck Helicopter Landing Qualifications.

b. (UJTL TA 1.1.4) Conduct Sea and Air Deployment Operations.

(1) Maintain the capability to deploy and operate from advanced bases, expeditionary airfields, Forward Operating Bases (FOBs), and naval shipping.

(2) Maintain the capability to conduct extended range operations employing aerial refueling.

(3) Perform organizational maintenance on assigned aircraft.

c. (UJTL TA 1.2.1) Conduct Air Assault Operations and Air Assault.

(1) Provide assault support transport of heavy equipment, supplies, and combat troops using internal and/or external means.

(2) Provide support for casualty evacuation operations.

(3) Maintain self-defense capability from ground-to-air and air-to-air threats.

d. (UJTL TA 1.2.3) Conduct Amphibious Assault and Raid Operations.

(1)Conduct assault support for maritime special operations.

e. (UJTL TA 4.2) Distribute Supplies and Provide Transport Service.

(1) Conduct Aerial Re-supply.

(2) Provide support for mobile Forward Arming and Refueling Points (FARPS).

f. (UJTL TA 4.4) Conduct Joint Logistics Over-The-Shore Operations (JLOTS).

g. (UJTL TA 6.2) Conduct Joint Personnel Recovery.

(1) Conduct Tactical Recovery of Aircraft and Personnel (TRAP) operations.

(2) Augment local Search and Rescue (SAR) assets.

h. (UJTL TA 6.4) Conduct Noncombatant Evacuation

(1) Provide support for evacuation operations.

3. Table of Organization. Refer to Table of Organization (T/O) 8960 managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53E units. As of this publication date, CH-53E units are authorized:

SQUADRON
16 Aircraft
38 Pilots
26 Crew Chiefs
26 Aerial Observers/Aerial Gunners

RESERVE SQUADRON
8 Aircraft
19 Pilots
13 Crew Chiefs
13 Aerial Observers/Aerial Gunners

DETACHMENT
4 Aircraft
8 Pilots
6 Crew Chiefs
6 Aerial Observers/Aerial Gunners

4. Core Capability. A core capable CH-53 unit is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.8 hour average sortie duration and assumes > 70 percent FMC aircraft and > 90 percent T/O aircrew on hand. If unit FMC aircraft < 70 percent or T/O aircrew < 90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

a. Core Capable Squadron. A core capable CH-53E squadron is able to sustain 27 sorties.

b. Core Capable Reserve Squadron. A core capable Reserve squadron is able to sustain 14 sorties.

c. Core Capable Squadron (-). A core capable squadron (-) is able to sustain 21 sorties.

d. Core Capable Detachment. A core capable detachment is able to sustain 7 sorties.

5. METL/Core Skill Matrix. CH-53E core skills directly support the METL as follows:

CH53E PILOT/EAC													
METL	CORE SKILLS												
	FAM/ INST	INT	FORM	CAL	TERF	EXT	GTR	AR	FCLP	AG	TAC	NS HLL	NS LLL
a. Conduct Shipboard Deck Landing Qualifications	X		X	X					X			X	X
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X	X	X	X	X	X
g. Conduct Joint Personnel Recovery	X	X	X	X	X		X	X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X	X	X		X	X	X	X	X	X	X

CH53E PILOT/EAC									
METL	CORE PLUS SKILLS								
	HIE	INT (TBFDS)	GTR	DM	NBC	CQ	MTG	TG	TAC
a. Conduct Shipboard Deck Landing Qualifications					X	X			
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X	X
g. Conduct Joint Personnel Recovery	X	X	X	X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X	X	X	X	X	X	X

6. CH-53E Core Model Minimum Requirements (CMMR). Squadron core competency reflects the minimum level of competency a squadron must achieve to perform its core capability. Squadron core competency is measured in terms of minimum unit Core Skill Proficiency (CSP) and minimum numbers of flight leaders per paragraphs a. and b. below:

a. Minimum Unit CSP Requirements. As a minimum, in order to be considered core competent, a unit must possess the following numbers of crews who are proficient in each core skill (unit CSP). In order to be considered proficient in a core skill (individual CSP), a crewmember must attain and maintain proficiency in core skill events, as delineated in paragraphs (1) and (2) below. The standard CH-53E crew consists of 2 pilots, a crew chief, and an AO/AG. Crew chief surpluses may be used to satisfy AO requirements. **Position may be filled by either crew chief or AO/AG.

CH-53E CMMR (Unit CSP Requirements) Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	32	-	-	16
INT	-	12	12	12
FORM	24	12	12	12
CAL	24	12	12	12
TERF	24	12	12	12
EXT	24	12	12	12
GTR	24	12	12	12
AR	12	-	-	6
FCLP	24	12	12	12
AG	16	8**		8
TAC	16	8	8	8
NS HLL	24	12	12	12
NS LLL	16	8	8	8
*HIE	8	4	4	4
*INT	-	4**		4
*GTR	16	8	8	8
*DM	16	8	8	8
*NBC	16	8	8	8
*CQ	18	9	9	9
*MTG	-	6**		6
*TG	-	8**		8
*TAC	16	8	8	8

CH-53E CMMR (Unit CSP Requirements) Squadron (-) (less 4 plane detachment)				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	24	-	-	12
INT	-	8	8	8
FORM	16	8	8	8
CAL	16	8	8	8
TERF	16	8	8	8
EXT	16	8	8	8
GTR	16	8	8	8
AR	8	-	-	4
FCLP	16	8	8	8
AG	12	6**		6
TAC	12	6	6	6
NS HLL	16	8	8	8
NS LLL	12	6	6	6
*HIE	6	3	3	3
*INT	-	4**		4
*GTR	12	6	6	6
*DM	12	6	6	6
*NBC	12	6	6	6
*CQ	10	5	5	5
*MTG	-	6**		6
*TG	-	6**		6
*TAC	12	6	6	6

CH-53E CMMR (Unit CSP Requirements) Reserve Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	18	-	-	9
INT	-	6	6	6
FORM	12	6	6	6
CAL	12	6	6	6
TERF	12	6	6	6
EXT	12	6	6	6
GTR	12	6	6	6
AR	6	-	-	3
FCLP	12	6	6	6
AG	8	4**		4
TAC	6	3	3	3
NS HLL	12	6	6	6
NS LLL	6	3	3	3
*HIE	4	2	2	2
*INT	-	2**		2
*GTR	8	4	4	4
*DM	8	4	4	4
*NBC	8	4	4	4
*CQ	8	4	4	4
*MTG	-	4**		4
*TG	-	4**		4
*TAC	6	3	3	3

CH-53E CMMR (Unit CSP Requirements) 4 Plane Detachment				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	8	-	-	4
INT	-	4	4	4
FORM	8	4	4	4
CAL	8	4	4	4
TERF	8	4	4	4
EXT	8	4	4	4
GTR	8	4	4	4
AR	4	-	-	2
FCLP	8	4	4	4
AG	4	4**		2
TAC	4	2	2	2
NS HLL	8	4	4	4
NS LLL	4	2	2	2
*HIE	4	2	2	2
*INT	-	1**		1
*GTR	8	4	4	4
*DM	8	4	4	4
*NBC	4	2	2	2
*CQ	8	4	4	4
*MTG		4**		4
*TG	-	4**		4
*TAC	4	2	2	2

(1) Events Required to Attain Individual CSP. To initially attain CSP, a pilot must successfully complete all of the T&R events listed in the chart below for that core skill.

CH-53E PILOT ATTAIN CORE SKILL PROFICIENCY (CSP)												
CORE SKILL	FAM/ INST	FORM	CAL	TERF	EXT	GTR	AR	FCLP	TAC	AG	NS HLL	NS LLL
T&R Event Requirements to Attain CSP	S200R 201R S202	210R	220 221R	230 231R	240 241R 242R S340 341R 343R	S250 350R	S260 360 361R 362R	S270 271 272 273R	290 390R	280R 380R	S202 211R 222 223R 224R 232R 233R 243 244R 291R	320 321R 322R 330 331R 342R 391R

CH-53E PILOT ATTAIN CORE PLUS PROFICIENCY						
CORE PLUS SKILL	HIE	GTR	DM	NBC	CQ	TAC
T&R Event Requirements to Attain Core Skill Plus Proficiency	400R 401R 402R	450R	451R 452R	460R	470R 471R 472R	490R 491R 492R 493R

(2) Events Required to Maintain Individual CSP. To maintain CSP, a pilot must maintain proficiency in all of the T&R events listed in the chart below for that core skill.

CH-53E PILOT MAINTAIN CORE SKILL PROFICIENCY (CSP)												
CORE SKILL	FAM/ INST	FORM	CAL	TERF	EXT	GTR	AR	FCLP	TAC	AG	NS HLL	NS LLL
T&R Event Requirements to Maintain CSP	201R	210R	221R	231R	241R 341R 343R	350R	361R 362R	273R	390R	280R 380R	211R 223R 233R 244R 291R	321R 331R 342R 391R

CH-53E PILOT MAINTAIN CORE PLUS PROFICIENCY						
CORE PLUS SKILL	HIE	GTR	DM	NBC	CQ	TAC
T&R Event Requirements to Maintain Core Skill Plus Proficiency	400R 401R 402R	450R	451R 452R	460R	472R	491R 492R 493R

b. Minimum Combat Leader Requirements. As a minimum, in order to be considered Core Competent, a unit must posses the following numbers of aircrew with the listed flight leadership designations.

Squadron	
DESIGNATION	Pilots
HAC	16
SEC LDR	9
DIV LDR	6
FLT LDR	5
AMC	4

Reserve Squadron	
DESIGNATION	Pilots
HAC	12
SEC LDR	8
DIV LDR	6
FLT LDR	4
AMC	2

Squadron (-)	
DESIGNATION	Pilots
HAC	12
SEC LDR	6
DIV LDR	4
FLT LDR	3
AMC	3

Detachment	
DESIGNATION	Pilots
HAC	4
SEC LDR	3
DIV LDR	2
FLT LDR	2
AMC	1

7. Qualifications And Designations Tables. The tables below delineate T&R events required to be completed to attain initial qualifications and designations. All stage lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in individual NATOPS and APR/MPR jackets. Loss of proficiency in all qualification events of a core skill causes the associated qualification to be lost. Regaining a qualification requires completing all R coded syllabus events associated with that qualification. Re-designation criteria shall be in accordance with the T&R Program Manual and paragraph 130.4 of this Manual.

Qualification	Initial Event Qualification Requirements
NATOPS	600 and IAW OPNAV 3710.7.
Instrument	601 and IAW OPNAV 3710.7.
TERF	230 and 231(R)
NSQ HLL	S202, 211(R), 222, 223(R), 224, 232, 233(R), 291
NSQ LLL	320, 321(R), 322, 330, 331(R), 391(R)
DM	451(R), 452(R)
AG (CC and AO/AG only)	280(R), 281(R), 380(R), 381(R)
TG (CC and AO/AG only)	481(R), 482(R), 483(R)

Designation	Designation Requirements
HAC	610, 611, 612(R). The PUI shall be complete with all 200 and 300 level events prior to beginning HAC syllabus.
SEC LDR	620, 621, 622, 628
DIV LDR	630, 631, 632, 638
FLT LDR	648
AIR MSN CDR	658
FLSE	Per CH-53 Flight Leadership Program Model Manager requirements.
TERFI	570, 571, 572(R)
ARI	520, 521(R)
ANI	600 and IAW OPNAV 3710.7.
NI	600 and IAW OPNAV 3710.7.
INSTI	601 and IAW OPNAV 3710.7.
NSFI	IAW the MAWTS-1 Course Catalog.
NSI	
DMI	
WTI	
AGI	
TGI	
IP	553, 554, 555, 556, 557, 558, 559
FCP	602, IAW CH-53 NATOPS Flight Manual, OPNAV 3710.7, OPNAV 4790, and local SOPs.

8. Instructor Requirements. A squadron should possess the following numbers of aircrew with the listed instructor designations per this Manual and MCO 3500.12C (WTTP).

Squadron			
INSTRUCTOR DESIGNATION	Pilots	Crew Chiefs	AO/AGs
TERFI	8	8	
DMI	4	4	
NSI	6	6	
WTI	3	3	
FLSE	2	NA	
AGI	NA	6*	
ARI	6	NA	
TGI	NA	2*	
*AO/AG designated as AGIs may be used to fulfill this requirement.			

Reserve Squadron			
INSTRUCTOR DESIGNATION	Pilots	Crew Chiefs	AO/AGs
TERFI	4	3	
DMI	2	2	
NSI	3	3	
WTI	2	2	
FLSE	1	NA	
AGI	NA	3*	
TGI	NA	1*	
ARI	3	NA	

Squadron (-)			
INSTRUCTOR DESIGNATION	Pilots	Crew Chiefs	AO/AGs
TERFI	4	3	
DMI	2	2	
NSI	4	4	
WTI	2	2	
FLSE	1	NA	
AGI	NA	3*	
TGI	NA	1*	
ARI	3	NA	
*AO/AG designated as AGIs may be used to fulfill this requirement.			

Detachment			
INSTRUCTOR DESIGNATION	Pilots	Crew Chiefs	AO/AGs
TERFI	2	2	
DMI	1	1	
NSI	1	1	
WTI	1	1	
FLSE	1	NA	
AGI	NA	1*	
TGI	NA	1*	
ARI	1	NA	
*AO/AG designated as AGIs may be used to fulfill this requirement.			

9. Training Progression Models. The CH-53 training progression model provides community recommended core skill, qualification, and designation attainment timelines for the average crewmember. Refer to Figure 1-1.

101. MARINE HEAVY HELICOPTER SQUADRON (CH-53D) UNIT CORE COMPETENCY. Marine Aviation plays a crucial role in the MAGTF's ability to conduct Maneuver Warfare. The ultimate goal of Marine Aviation is to attain the highest possible combat readiness to support Expeditionary Maneuver Warfare while at the same time preserving and conserving our Marines and equipment. Embedded within our combat readiness is the ability to rapidly, effectively, and efficiently deploy on short notice and the ability to quickly and effectively plan for crises and/or contingency operations thereby ensuring Marine Aviation remains ready for combat when and where the need arises. The CH-53 T&R Manual represents the collaborative effort of CH-53 Subject Matter Experts who designed training standards to maximize the full combat capabilities of the CH-53 and its crew. These standards, intrinsic in the core competency section, describe and define unit capabilities and requirements necessary to maintain like-squadron proficiency in core skills and combat leadership. Training events are based on specific requirements and performance standards to ensure aircrew maintain a common base of training and depth of combat capabilities. Together, the T&R comprises a building block approach to ensure that trained aircrews remain ready, relevant, and fully capable of supporting the MAGTF commander.

1. HMH Mission. Support the MAGTF Commander by providing assault support transport of combat troops, supplies, and equipment, day or night under all weather conditions during expeditionary, joint, or combined operations

2. Mission Essential Task List (METL)

a. (UJTL TA 1.1.2) Conduct Shipboard Deck Helicopter Landing Qualifications.

b. (UJTL TA 1.1.4) Conduct Sea and Air Deployment Operations.

(1) Maintain the capability to deploy and operate from advanced bases, expeditionary airfields, Forward Operating Bases (FOBs), and naval shipping.

(2) Perform organizational maintenance on assigned aircraft.

c. (UJTL TA 1.2.1) Conduct Air Assault Operations and Air Assault.

(1) Provide assault support transport of equipment, supplies, and combat troops using internal and/or external means.

(2) Provide support for casualty evacuation operations.

(3) Maintain self-defense capability from ground-to-air and air-to-air threats.

d. (UJTL TA 1.2.3) Conduct Amphibious Assault and Raid Operations.

(1) Conduct assault support for maritime special operations.

e. (UJTL TA 4.2) Distribute Supplies and Provide Transport Service.

(1) Conduct Aerial Re-supply.

(2) Provide support for mobile Forward Arming and Refueling Points (FARPS).

f. (UJTL TA 4.4) Conduct Joint Logistics Over-The-Shore Operations (JLOTS).

g. (UJTL TA 6.2) Conduct Joint Personnel Recovery.

(1) Conduct Tactical Recovery of Aircraft and Personnel (TRAP) operations.

(2) Augment local Search and Rescue (SAR) assets.

h. (UJTL TA 6.4) Conduct Noncombatant Evacuation.

(1) Provide support for evacuation operations.

3. Table of Organization. Refer to Table of Organization (T/O) 8950X managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53D units. As of this publication date, CH-53D units are authorized:

SQUADRON
10 Aircraft
27 Pilots
22 Crew Chiefs
16 Aerial Observers/Aerial Gunners

4. Core Capability. A core capable CH-53D unit is able to sustain 17 sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.5 hour average sortie duration and assumes > 70 percent FMC aircraft and > 90 percent T/O aircrew on hand. If unit FMC aircraft < 70 percent or T/O aircrew < 90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

5. METL/Core Skill Matrix. CH-53D core skills directly support the METL as follows:

CH53D PILOT/EAC												
METL	CORE SKILLS											
	FAM/ INST	INT	FORM	CAL	TERF	EXT	GTR	FCLP	AG	TAC	NS HLL	NS LLL
a. Conduct Shipboard Deck Landing Qualifications	X		X	X				X			X	X
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X	X	X	X	X
g. Conduct Joint Personnel Recovery	X	X	X	X	X		X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X	X	X		X	X	X	X	X	X

CH53D PILOT/EAC								
METL	CORE PLUS SKILLS							
	HIE	GTR	DM	NBC	CQ	MTG	TG	TAC
a. Conduct Shipboard Deck Landing Qualifications				X	X			
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X
g. Conduct Joint Personnel Recovery	X	X	X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X	X	X	X	X	X

6. CH-53D Core Model Minimum Requirements (CMMR). Squadron core competency reflects the minimum level of competency a squadron must achieve to perform its core capability. Squadron core competency is measured in terms of minimum unit Core Skill Proficiency (CSP) and minimum numbers of flight leaders per paragraphs a. and b. below:

a. Minimum Unit CSP Requirements. As a minimum, in order to be considered Core Competent, a unit must possess the following numbers of crews who are proficient in each core skill (unit CSP). In order to be considered proficient in a core skill (individual CSP), a crewmember must attain and maintain proficiency in core skill events, as delineated in paragraphs (1) and (2) below. The standard CH-53D crew consists of 2 pilots, a crew chief, and an AO/AG. Crew chief surpluses may be used to satisfy AO requirements. **Position may be filled by either crew chief or AO/AG.

CH-53D CMMR (Unit CSP Requirements) Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	20	-	-	10
INT	-	10	10	10
FORM	16	8	8	8
CAL	16	8	8	8
TERF	16	8	8	8
EXT	16	8	8	8
GTR	16	8	8	8
FCLP	16	8	8	8
AG	12	6**		6
TAC	12	6	6	6
NS HLL	16	8	8	8
NS LLL	12	6	6	6
*HIE	16	8	8	8
*GTR	12	6	6	6
*DM	12	6	6	6
*NBC	16	8	8	8
*CQ	16	8	8	8
*MTG	-	6**		6
*TG	-	6**		6
*TAC	16	8	8	8

(1) Events Required to Attain Individual CSP. To initially attain CSP, a crewmember must successfully complete all of the T&R events listed in the chart below for that core skill.

CH-53D PILOT ATTAIN CORE SKILL PROFICIENCY (CSP)											
CORE SKILL	FAM/ INST	FORM	CAL	TERF	EXT	GTR	FCLP	TAC	AG	NS HLL	NS LLL
T&R Event Requirements to Attain CSP	S200R 201R S202R	210R	220 221R	230 231R	240 242R S340 341R 343R	S250 350R	S270 271 272 273R	290 390R	280 380R	S202 211R 222 223R 232R 233R 243 291R	320 321R 322R 330 331R 342R 391R

CH-53D PILOT ATTAIN CORE PLUS PROFICIENCY						
CORE PLUS SKILL	HIE	GTR	DM	NBC	CQ	TAC
T&R Event Requirements to Attain Core Skill Plus Proficiency	400R 401R 402R	450R	451R 452R	460R	470R 471R 472R	490R 491R 492R 493R

(2) Events Required to Maintain Individual CSP. To maintain CSP, a crewmember must maintain proficiency in all of the T&R events listed in the chart below for that core skill.

CH-53D PILOT MAINTAIN CORE SKILL PROFICIENCY (CSP)											
CORE SKILL	FAM/ INST	FORM	CAL	TERF	EXT	GTR	FCLP	TAC	AG	NS HLL	NS LLL
T&R Event Requirements to Maintain CSP	201R	210R	221R	231R	240 341R 343R	350R	273R	390R	280R 380R	211R 223R 233R 243 291R	321R 331R 342R 391R

CH-53D PILOT MAINTAIN CORE PLUS SKILL PROFICIENCY						
CORE PLUS SKILL	HIE	GTR	DM	NBC	CQ	TAC
T&R Event Requirements to Maintain Core Skill Plus Proficiency	400R 401R 402R	450R	451R 452R	460R	472R	491R 492R 493R

b. Minimum Combat Leader Requirements. As a minimum, in order to be considered core competent, a unit must posses the following numbers of aircrew with the listed flight leadership designations.

Squadron	
DESIGNATION	Pilots
HAC	12
SEC LDR	8
DIV LDR	4
FLT LDR	4
AMC	3

7. Qualifications And Designations Tables. The tables below delineate T&R events required to be completed to attain initial qualifications and designations. All stage lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in individual NATOPS and APR/MPR jackets. Loss of proficiency in all qualification events of a core skill causes the associated qualification to be lost. Regaining a qualification requires completing all R coded syllabus events associated with that qualification. Re-designation criteria shall be per the T&R Program Manual and paragraph 130.4 of this Manual.

Qualification	**Initial Event Qualification Requirements**
Instrument	IAW OPNAVINST 3710.7
TERF	230,231
DM	451,452
NSQ-HLL	211,222,223,232,233,291
NSQ-LLL	320,321,330,331,391
AG	280,281,380,381

Designation	Designation Requirements
HAC	610, 611, 612
SEC LDR	620, 621, 622, 628
DIV LDR	630, 631, 632, 638
FLT LDR	648
AIR MSN CDR	658
FLSE	Per CH-53 Flight Leadership Program Model Manager requirements.
TERFI	570, 571, 572
DMI	Per MAWTS-1 Course Catalog
NSI	Per MAWTS-1 Course Catalog
WTI	Per MAWTS-1 Course Catalog
CSII	550,551,552
AGI (CC/AO)	Per MAWTS-1 Course Catalog
FCP	602, IAW OPNAVINST 4790 and command specific directives

8. Instructor Requirements. A squadron should possess the following numbers of aircrew with the listed instructor designations per the CH-53 T&R and MCO 3500.12C (WTTP).

	Squadron		
INSTRUCTOR DESIGNATION	Pilots	Crew Chiefs	AO/AGs
TERFI	5	4	-
DMI	3	3	-
NSI	3	3	-
FLSE	2	NA	
WTI	2	2	-
CSII	1	1	-
AGI	-	3*	
TGI	-	2*	

9. Training Progression Models. The CH-53 training progression model provides community recommended core skill, qualification, and designation attainment timelines for the average crewmember.

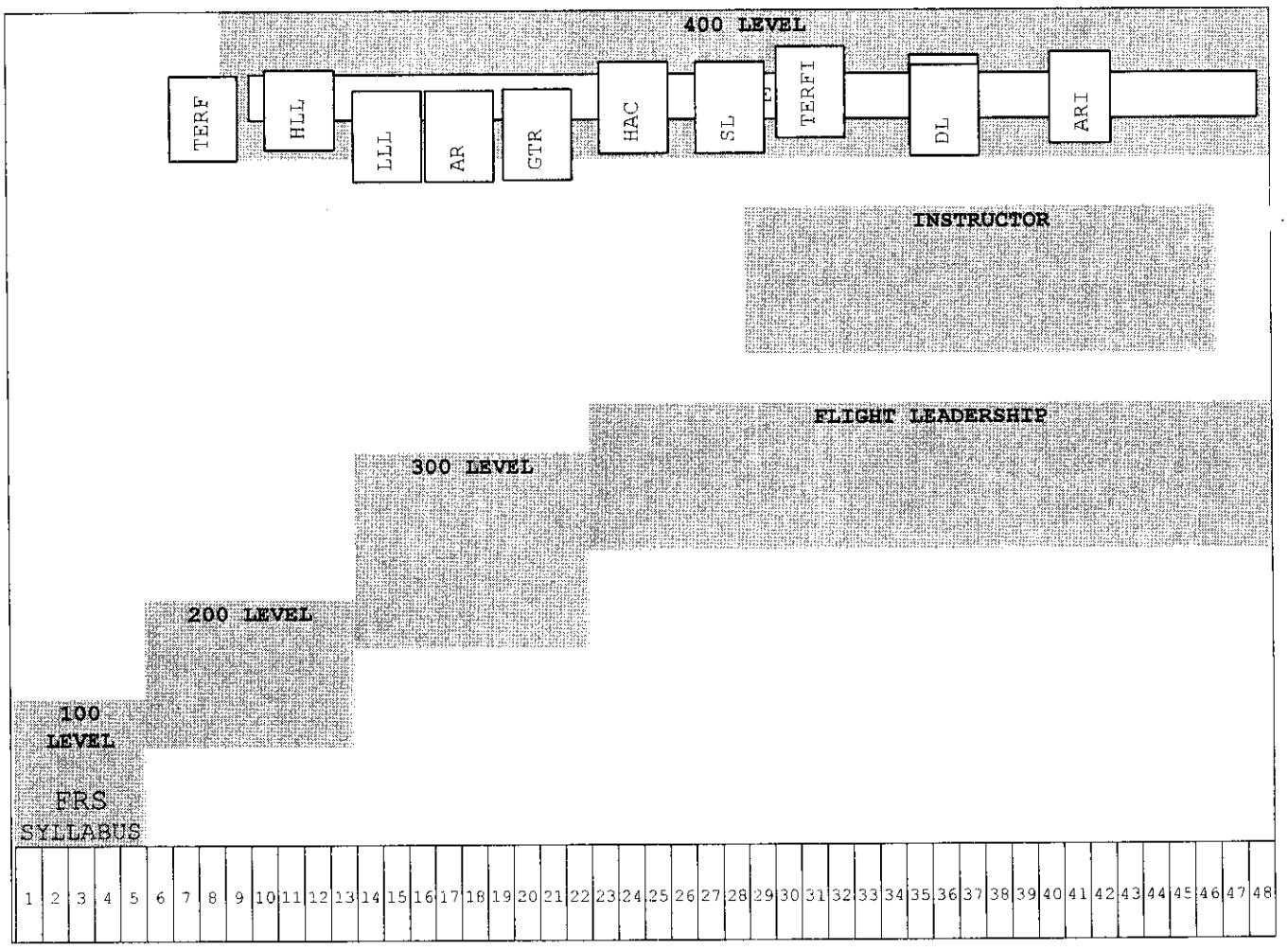

Figure 1-1.--CH-53 Training Progression Model.

102. POI FOR BASIC/TRANSITION PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-24	CH-53E Core Skill Intro	FRS
25-55	Core Skill Basic	Tactical Squadron
56-68	Core Skill Advanced	Tactical Squadron
68+	Core Plus	Tactical Squadron

103. POI FOR CONVERSION PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-12	Core Skill Introduction	Training Squadron
13-24	Core Skill Basic	Tactical Squadron
25-36	Core Skill Advanced	Tactical Squadron
36+	Core Plus	Tactical Squadron

104. POI FOR CH-53 SERIES CONVERSION PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-2	CH-53E Core Skill Intro	FRS
3-6	CH-53D Core Skill Intro	MAG-24
7-15	Core Skill Basic	Tactical Squadron
16-26	Core Skill Advanced	Tactical Squadron
27+	Core Plus	Tactical Squadron

105. POI FOR REFRESHER PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-4	CH-53D or CH-53E Core Skill Intro	FRS
5-9	Core Skill Basic	Tactical Squadron
10-26	Core Skill Advanced	Tactical Squadron
27+	Core Plus	Tactical Squadron

106. POI FOR MODIFIED REFRESHER PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-2	Core Skill Introduction	Training Squadron

120. GROUND/ACADEMIC TRAINING COURSES OF INSTRUCTION. Utilize academic courseware as outlined in the Instructional System Development (ISD) program and Chapter 7 and 10 of the MAWTS-1 Course Catalog.

130. EVENT PERFORMANCE REQUIREMENTS

1. General

a. This Manual is written to allow for local conditions and yet remain unclassified. DC AVN and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics.

b. All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

c. The following event descriptors annotate the environment under which syllabus events are flown. The flight simulator is used for those events designated with an S. To provide commanding officers the maximum amount of flexibility for training, some events allow for the optional use of simulators or aircraft. Those events will use A/S for aircraft preferred, simulator optional and S/A for simulator preferred, aircraft optional. The visual system is required for completion of syllabus events in the simulator except for instrument flights that can be flown without the visual system.

Environmental Conditions	
Code	Meaning
	Shall be flown during day: (by exception - there is no use of a symbol)
N	Shall be flown at night: may be aided or unaided
N*	Shall be flown at night: must be flown unaided
(N*)	May be flown at night: If flown at night must be flown unaided
(N)	May be flown at night: If flown at night, may be flown aided or unaided
NS	Shall be flown at night: Mandatory use of Night Vision Devices
(NS)	May be flown at night: If flown at night, must be flown with Night Vision Devices
Note - If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.	

d. All references to HNVS, HUD, dual point externals, TBFDS, and aerial refueling apply only to the CH-53E. CH-53Ds will perform single point externals on all external events.

2. Syllabus Assignment

a. Basic, Transition, and Model Conversion pilots shall be assigned to the Basic POI. Refresher pilots will fly those flights designated by an MR or R in the flight description. The matrices found in paragraph 170 depict the events required for each POI. The squadron training officer shall ensure all Aircrew Training Forms (ATFs) are entered in section 3 of the Aircrew Performance Record (APR) for all initial qualification events designated by R, MR, SC, SCD, or SCE in the event description. These ATFs will replace ATFs previously entered in section 3.

(1) CH-53 Series Conversion. CH-53D to CH-53E Series Conversion pilots will fly those 100 level flights designated by an SCE in the event description at the FRS. CH-53E to CH-53D Series Conversion pilots will fly those 100 level flights designated by a SCD in the event description at MAG-24. CH-53D initial accession pilots will perform Basic Core Skill Introduction training at HMT-302 followed by CH-53E to CH-53D Series Conversion Core Skill Introduction training conducted at MAG-24. Upon completion of CH-53E to CH-53D Series Conversion Core Skill Introduction training, initial accession pilots shall resume the Basic POI syllabus per the T&R. Upon completion of 100 level SCD/E events, Series Conversion pilots shall continue to fly 200-400 level SC-coded events at the tactical squadron.

(2) CH-53E FRS Refresher Training. CH-53E pilots requiring FRS Refresher Training shall fly the appropriate 100 level MR or R-coded events per this manual at the FRS. CH-53E pilots converting to the CH-53D requiring FRS Refresher training shall complete the appropriate 100 level MR or R-coded events and CH-53D Series Conversion training concurrently at MAG-24.

(3) CH-53D FRS Refresher Training. CH-53D pilots requiring FRS Refresher Training shall fly the appropriate 100 level MR or R events per this manual at MAG-24.

(4) Model Conversion. Pilots selected for model conversion to the CH-53 shall be assigned to the Basic POI. The following Basic POI events shall be waived at the FRS: 101, 102, 103, 104, 113, 115, 117, 119, 130, 133, 134, 135, 140, 141, 142, 152, 160, 162, and 181. Pilots selected for model

conversion to the CH-53D shall conduct 100 level training at the FRS per the above followed by CH-53D Series Conversion training conducted at MAG-24.

b. Squadron Refresher Syllabus. The Refresher Syllabus is predicated on the experience of the Refresher pilot. A pilot in the Refresher Syllabus should fly all R coded events. The commanding officer may tailor the Refresher Syllabus to fit the experience of the Refresher pilot per T&R Program Manual. When the R coded events within a stage of training are complete, the pilot may be credited with the CRP from the entire stage of training. This assumes the Refresher pilot has previous proficiency in a stage of training. If the Refresher pilot has no previous proficiency in a stage or particular event, then the Refresher shall fly the entire stage or all events not previously flown.

c. CH-53E to CH-53D Series Conversion and CH-53D Refresher Core Skill Introduction training. The MAG-24 standardization department shall manage and execute CH-53E to CH-53D Series Conversion and CH-53D Refresher Core Skill Introduction training (vice a CH-53 FRS). MAG-24 shall provide a training environment where other billet responsibilities do not detract from that training IAW NAVMC DIR 3500.14 (Program Manual).

(1) CH-53D Core Skill Introduction training conducted at MAG-24 shall be conducted IAW the MAG-24 Core Skill Introduction Training Standardization Manual.

(2) Aircrew assigned to these syllabi shall check in to their parent squadron and subsequently be issued TAD orders to MAG-24. Aircrew shall be assigned to the MAG-24 standardization department for the duration of Core Skill Introduction training. Parent squadrons shall not assign these aircrew collateral duties during the course of Core Skill Introduction training.

(3) The MAG-24 standardization department shall be headed by the MAG DOSS and shall be manned by a minimum of three pilot and three Crew Chief CH-53D Core Skill Introduction Instructors (CSII). Each MAG-24 CH-53D Squadron shall be manned by a minimum of one pilot and one Crew Chief CSII.

(4) The MAG-24 standardization evaluator shall certify all CSIIs prior to designation. The MAG-24 standardization evaluator shall conduct an annual standardization check for all MAG CSIIs.

(5) Only the MAG-24 Commanding Officer may approve waiver/deferral of Core Skill Introduction training (per paragraph 305 of NAVMC DIR 3500.14 (Program Manual)).

(6) MAG-24 shall coordinate aircraft support from CH-53D squadrons in support of these syllabi.

(7) All CH-53E to D Series Conversion flight events are 2.0 hours in duration.

4. Prior Designation/Qualification

a. Re-designation (HAC, SecLdr, DivLdr, FltLdr, AMC). Aircrew may be re-designated IAW the Mission and Instructor Designation/Qualification chapter, NAVMC DIR 3500.14 (Program Manual).

b. Re-qualification (TERFQ, NSQ HLL, NSQ LLL, ARQ, DMQ). Upon demonstration of proficiency in a specific core skill, an aircrew may be re-qualified at the discretion of the commanding officer.

c. Instructor Re-designation (TERFI, ARI, DMI, NSI). Upon demonstration of proficiency in a specific core skill, an aircrew member may be re-designated as an instructor in that core skill (per this Manual and MAWTS-1 course catalog) at the discretion of the commanding officer.

5. Crew Position Designator. The emphasis in training for basic pilot training should be in the left seat through core skill introduction training.

6. Aircrew Evaluation Flights. All pilots shall have an evaluation form completed for the following:

a. NATOPS Check (CSIX-191, FL-612, and EVAL-600). A designated NATOPS instructor/assistant shall evaluate these flights.

b. Instrument Check (EVAL-601). A designated instrument instructor shall evaluate EVAL-601 annually.

c. All initial syllabus events or additional events recommended by the Squadron Standardization Board for the Basic, Series Conversion, or Refresher pilot will be flown with an aircraft commander who is proficient in that syllabus event and will evaluate the sortie and write an ATF.

d. For all syllabus events waived by the commanding officer, the squadron training officer shall place a waiver letter in section 3 of the APR.

7. CRM. Aircrews shall brief techniques of CRM for all flights and/or events.

8. Definition of Terms

a. Demonstrate: The description and performance of a particular maneuver is demonstrated by the instructor, observed by the PUI. The PUI is responsible for knowledge of the procedures prior to the demonstration of a required maneuver.

b. Discuss: An explanation of systems, procedures, or maneuvers during the brief, in-flight, or post-flight.

c. Introduce: The instructor may demonstrate a procedure or maneuver to a student, or may coach the PUI through the maneuver without demonstration. The PUI performs the procedures or maneuver with coaching as necessary. The PUI is responsible for knowledge of the procedures.

d. Practice: The performance of a maneuver or procedure by the PUI that may have been previously introduced in order to attain a specified level of performance.

e. Review: Demonstrated proficiency of a maneuver by the PUI.

131. CORE SKILL INTRODUCTION

1. Familiarization (FAM)

a. Purpose. To develop preliminary flight skills in the CH-53 and become familiar with aircraft flight characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during day and night.

b. General

(1) Prior to FAM-110, complete appropriate CBT/audio-visual training and conduct a thorough preflight, post flight inspection and a cockpit familiarization to include a blindfold cockpit check. FAM-110 through FAM-115 will normally be completed prior to flying higher stage events. Discuss and become thoroughly familiar with all aspects of CRM applicable to familiarization stage maneuvers as described in the appropriate CH-53 NATOPS Flight Manual and FRS Standardization Manual.

(2) Pilots shall conduct Core Skill Introduction Night Systems (NS) phase flights under High Light Level (HLL) ambient conditions with an NS FAM Instructor (NSFI) or NS Instructor (NSI).

c. Crew Requirement. IP/RAC/CC. AO required for FAM-121 and FAM-122.

d. Ground Training. Pilots should complete the appropriate simulator training prior to beginning the Core Skill Introduction training flight.

FAM-100	1.0	R,SCE,SCD S

Goal. Introduce normal cockpit procedures, start procedures, and shutdown procedures.

Requirement

Introduce:
- Pre-start checklist.
- Post APP start checklist.
- Starting engines/rotors checklist.
- Pre-taxi checklist.
- Cargo ramp and door procedures checklist.
- Operation of engine trim switches.
- Cruise checklist.
- Fuel transfer checklist.
- Monitoring of instruments (fuel gauges).
- Operation of the ICS and radios.
- Fuel management.
- Pre-landing checklist.
- Shutdown checklist.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-101 1.0 SCD S

Goal. Introduce aircraft emergencies, normal ground and flight procedures. Review start/shutdown procedures.

Requirement

Introduce:
- Aircrew brief.
- External fuel tank jettison.
- Cargo ramp/door operation.
- Engine start emergencies.
- Vertical takeoff to a hover.
- Transition to forward flight.
- Normal approaches to a hover and normal vertical landing.
- Engine compartment fire on the ground.
- Single and/or dual engine compartment fires in-flight.
- Simultaneous engine compartment fires in-flight.
- APP or cabin heater fire.
- Fuselage fire.
- Fuel dump.

Practice:
- Start/shutdown procedures.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-102 1.0 SCD S

Goal. Introduce engine malfunctions. Practice cockpit and flight procedures, start/shutdown checklist and all previously introduced emergencies.

Requirement

Introduce:
- Blade/pylon fold system switchology.
- CH-53 NATOPS brief/CH-53 NATOPS debrief.
- Maximum performance takeoff.
- Straight-in approach.
- Engine restarts during flight.
- Crosswind landing.
- Single engine failure (hover and takeoff).
- Effects of gross weight on single and/or dual engine performance.
- Single and/or dual engine failure at altitude.
- Engine shutdown in-flight.
- Compressor stall.
- Engine power loss.
- Engine post-shutdown fire.

Practice:
- Cockpit and flight procedures.
- Start/shutdown checklist.

All previously introduced emergencies.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-103 1.0 SCD S

Goal. Introduce running landings and autorotations. Practice aircraft emergencies, previously introduced flight procedures and normal cockpit procedures.

Requirement

Introduce:
- Running takeoff/landing.
- Wave-off.
- Single and/or dual engine wave-off/landing.
- Power recovery autorotation.
- High angle of bank maneuvering and the effects of variables (angle of bank, power required, descent rate, gross weight, temperature, density altitude, etc.) on the performance of the aircraft.
- Dual engine failure at altitude.
- Engine overspeed.
- Single and/or dual engine failure (hover/takeoff).
- Nf flex shaft failure.

Practice:
- Aircraft emergencies.
- Previously introduced flight procedures.
- Normal cockpit procedures.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-104 1.0 SCD S

Goal. Introduce gearbox malfunctions. Introduce basic CRM concept. Practice previously introduced emergency and flight procedures.

Requirement

Introduce:
- Engine chip detector light.
- Control linkage failure.
- Power deterioration.
- Engine oil pressure high caution light, high oil temperature, engine oil quantity low.
- Nose gearbox chip detector light/failure.
- Accessory gearbox oil system failure.
- Accessory gearbox chip detector light/failure.
- Main gearbox oil system failures.

Main gearbox chip locator light/failure.
Power train failures.
Tail rotor drive system failure, tail rotor gearbox or intermediate gearbox failure, and tail rotor or intermediate gearbox chip detector light.

Practice:
Previously introduced emergencies.
Flight procedures.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-105 1.5 R,SCE S

Goal. Introduce communication skills IAW CRM techniques. Practice all ground, flight, and aircraft emergency procedures.

Requirement

Introduce:
Obstacle takeoff and approach.
Smoke and fume elimination.
AFCS computer malfunctions/mode failures , total AFCS failure.
BIM/Blade Pressure caution light (in-flight).
Approach and landing with tail rotor control system failure.
Tail rotor tandem servo malfunction.
Fuel filter bypass light.
Hydraulic fire in main rotor pylon.
Use of GPS system.
Sender/receiver responsibilities and overcoming communication barriers. Discuss ICS switchology and techniques, visual and standard terminology.

Practice:
Ground, flight, and aircraft emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-106 1.0 R,SCE S

Goal. Conduct Progress Check. Introduce communication skills IAW CRM techniques.

Requirement

Introduce:
Ground resonance procedure.
Power settling (vortex ring state).

Settling with power.
Dynamic rollover.
Electrical fire.
Alternating/Direct current system failures.
Rotor damper failure.
Lightning strike.
Most conservative response rule, the two-challenge rule, and task saturation with compound emergencies.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FAM-107 1.0 SCD S NS

Goal. Introduce NS adaptation.

Requirement

Introduce:
NS set-up/operation.
Cockpit lighting.
Blind cockpit drills.
NS malfunctions.
NS goggle/degoggle procedures.
NS scan techniques.
Basic FAM pattern and approaches utilizing NS. Emergencies while wearing NS.
NS failure.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. The Night Imaging and Threat Evaluation (NITE) Lab syllabus.

External Syllabus Support. WST/APT.

FAM-110 1.5 SCE 1 CH-53E

Goal. Introduce start, normal ground, and flight procedures including low work and normal approaches.

Requirement

Discuss:
Fuel management.
Fuel dump system/procedures and auxiliary fuel tank jettison system/parameters.
Fuel supply system, fuel transfer system, fuel purge system, and pressure refueling system.

Introduce:
Normal cockpit procedures.
Starting procedures.
Radio procedures.

Taxiing.
Vertical takeoffs and landings.
Transition to forward flight.
Operation of engine trim switches.
Normal approaches to a hover.
Ramp operation.
Shutdown procedures.
Conduct an area familiarization and local course rules flight.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. Preflight walk-around, Egress, and local course rules exam.

FAM-111 1.5 1 CH-53E

Goal. Introduce precision hover/low work. Practice start, normal ground, and previously introduced flight procedures.

Requirement

Discuss:
Engine restart in-flight.
Blade and pylon fold.
Utility hoist procedures.
Effects of Pilot Induced Oscillations (PIO).
Exhaust gas re-ingestion.
Effects of high AOB maneuvering and subsequent aircraft response.
No 2 engine dual thermal detection system.
No 2 engine over-heat caution light in flight.
Engine start/ignition system.
Hot start, hung start.
AOB limitations.
Emergency shutdown procedures.

Demonstrate:
High AOB maneuvers.

Introduce:
Square patterns/turns on the spot.
Precision (stable) hover.
Air taxi.
Single engine and/or dual engine flight characteristics at altitude.

Practice:
Start procedures.
Normal ground procedures.
Previously introduced flight procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-112 1.5 MR 1 CH-53E

Goal. Introduce engine failure(s) at altitude, running takeoffs and landings, precision approaches, and practice autorotations.

Requirement

Discuss:
- Engine system/limitations.
- Engine overspeed/Nf flex shaft failure.
- Compressor stall.
- Engine power loss.
- Engine high/low oil pressure.
- Engine high oil temperature.
- Engine chip detector light.
- Control linkage failure.
- Effects of gross weight on single and/or dual engine performance.
- Engine shutdown in flight/fuel siphoning.
- Engine restart in flight.

Introduce:
- Simulated single and/or dual engine failure at altitude.
- Running takeoffs and landings.
- Precision approaches to a hover.
- Autorotations with power recovery.

Practice:
- Cockpit procedures.
- Hover/low work.
- Previously introduced FAM maneuvers.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-113 1.5 1 CH-53E

Goal. Introduce no hover landings. Practice previously introduced FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:
- The effects of aircraft gross weight on single and/or dual engine performance capability.
- Single/dual engine wave-off.
- Fire detection/extinguishing system.
- Engine compartment fire on the ground.
- Engine compartment fires in flight.
- APP or cabin heater fire.
- Fuselage fire.
- Hydraulic fire in main rotor pylon.
- Engine post shutdown fire.
- Electrical fire.
- Smoke and fume elimination.
- Fire during ground refueling.

Introduce:
No hover landings.
Single and/or dual engine wave-offs.
Simulated single and/or dual engine failure during takeoff.
Simulated single and/or dual engine approaches and landings (running and to a spot).
Simulated single and/or dual engine failure above 50 feet AGL.

Practice:
Previously introduced FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-114 1.5 MR,R,SCE 1 CH-53E

Goal. Introduce simulated partial/total AFCS failure. Practice FAM and previously introduced simulated emergency procedures.

Requirement

Discuss:
AFCS system/functions.
Inner/outer loop.
AFCS servo functions.
AFCS servo hardover.
Longitudinal bias actuator.
FAS functions.
Trim functions.
Desensitizer failure.
AFCS computer malfunctions/mode failures.
Total AFCS failure.
Ground resonance.

Introduce:
Obstacle takeoff, approach.
Partial/total AFCS failure.

Practice:
Previously introduced FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-115 1.5 1 CH-53E

Goal. Introduce high AOB maneuvers. Practice all FAM and simulated emergency procedures.

Requirement

Discuss:
BIM/IBIS blade systems.

BIM/Blade pressure caution light in flight.
Flight control system.
Control couplings.
Damper system/failure.
Primary tandem servos operation/malfunction.
Approach and landing with a tail rotor control system malfunction.

Introduce:
High AOB maneuvers.

Practice:
All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-116 1.5 R,SCE 1 CH-53E

Goal. Practice all FAM maneuvers, and simulated emergency procedures.

Requirement

Discuss:
Transmission system/limitations.
Chip detection system.
Nose gearbox chip location light.
Nose gearbox failure.
Accessory gearbox oil system failure.
Accessory gearbox chip locator light.
Accessory gearbox failure.
Main gearbox chip locator light.
Main gearbox oil system failure.
Loss of main gearbox lubrication.
Power train failure.
Tail rotor or intermediate gearbox chip detector light.
Tail rotor gearbox or intermediate gearbox failure.
Tail rotor drive system failure.
Pylon unsafe for flight light.

Practice:
All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-117 1.5 1 CH-53E

Goal. Practice all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:
Rotor brake system.
APP.
Hydraulic power supply systems.
Hydraulic power supply system failures.
Utility hydraulic subsystems.

Practice:
All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-118 1.5 R,SCE 1 CH-53E

Goal. Review all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:
Ground cushion and ground effect.
Effect of wind on translational lift.
Effect of temperature and pressure altitude on power available.
Power required for flight at various airspeeds (hover to V_{MAX}).
Effects of gross weight, altitude, temperature, turbulence, and wind on power required for hover both in and out of ground effect.
Effects of gross weight, altitude, temperature, and turbulence on blade stall.
Maximum speed level flight with turns for existing ambient conditions.
Conditions leading to power settling and settling with power.
Landing gear system.
Landing gear system failure.
Bearing Monitor System.
Bearing VIB or TEMP DETECT and LIMIT.
BMS fault isolation.

Practice:
All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. IAW CH-53E NATOPS and FRS Standardization Manual.

FAM-119 1.5 1 CH-53E

Goal. Conduct Progress Check.

Requirement

Practice:
All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Demonstrate proficiency of FAM maneuvers IAW CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. CH-53E NATOPS open book exam.

FAM-120 1.5 MR,R,SCE 1 CH-53E N*

Goal. Introduce FAM maneuvers at night.

Requirement

Discuss:
Aircraft lighting systems.
Electrical failures.
Electrical power supply system.
Single and multiple generator failure.
Single and dual rectifier failure.
Minimum aircraft equipment required for night flight.

Introduce:
Normal procedures and maneuvers under conditions of darkness at a lit airfield.
Night basic airwork, low work, and landings with various light configurations.
Tip path plane awareness.
HNVS operation.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

FAM-121 1.5 1 CH-53E NS

Goal. Introduce NS low work and pattern work.

Requirement

Discuss:
NS operations/failures.
Cockpit lighting.
Crew coordination.
Comfort level.
Low altitude emergencies
Inadvertent IMC procedures.
Aircraft external lighting.
NS visual characteristics and limitations.
Scan techniques.

Introduce:
Use of NS while performing taxi, basic low work, hover, and vertical takeoffs/landings at an unlit field or packed surface.

Performance Standards. Per CH-53E NATOPS, FRS Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. The Night Imaging and Threat Evaluation (NITE) Lab syllabus. FAM-120 and based off of simulator availability, FAM-107.

FAM-122 1.5 R,SCE 1 CH-53E NS

Goal. Practice low work, takeoffs/landings and pattern work while using NS.

Requirement

Discuss:
- Solar Lunar Almanac Program (SLAP).
- Light Interference Filters (LIFS).
- Effects of shadowing on NS operations.
- Effects of atmospheric conditions on NS performance.
- Blooming/de-gaining.
- Approach pattern.
- External aircraft lighting.
- Spectrum viewed by NS (FLIR/NS).

Practice:
- Use of NS while performing taxi, basic low work, hover, and vertical takeoffs/landings at an unlit field or packed surface.

Performance Standards. Per CH-53E NATOPS, FRS Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. FAM-121.

FAM-123 2.0 SCD 1 CH-53D

Goal. Introduce CH-53D specific aircraft performance characteristics and FAM maneuvers.

Requirement

Discuss:
- Engine system/limitations.
- Engine overspeed/Nf flex shaft failure.
- Compressor stall.
- Engine power loss.
- Engine high/low oil pressure.
- Engine high oil temperature.
- Engine chip detector light.
- Control linkage failure.
- Effects of gross weight on single engine performance.
- Engine shutdown in flight/fuel siphoning.
- Engine restart in flight.
- Fire detection/extinguishing system.
- Engine compartment fire on the ground.
- Engine compartment fires in flight.

Engine post shutdown fire.
Emergency shutdown procedures.
Transmission system/limitations.
Chip detection system.
Nose gearbox chip location light.
Nose gearbox failure.
Accessory gearbox oil system failure.
Accessory gearbox chip locator light.
Accessory gearbox failure.
Main gearbox chip locator light.
Main gearbox oil system failure.
Loss of main gearbox lubrication.
Effects of Pilot Induced Oscillations (PIO).
CRM procedures.
Local area course rules.

Demonstrate:
Autorotations with power reccvery.

Introduce:
Startup and shutdown procedures.
Taxiing.
Vertical takeoffs and landings.
Transition to forward flight.
Normal approaches to hover and no hover landings.
Running takeoffs and landings.
Precision approaches to hover and no hover landings.
Simulated single engine failure at altitude.
Conduct an area familiarization and local course rules flight.

Performance Standards. Per CH-53D NATOPS and MAG-24/CH-53D FRS Standardization Manual.

Prerequisites. FAM 100-104. Preflight walk-around, Egress drill (as required), and local course rules exam.

FAM-124 2.0 SCD 1 CH-53D

Goal. Introduce CH-53D specific simulated emergency procedures and practice previously introduced FAM maneuvers.

Requirement

Discuss:
Rotor brake system.
APP.
APP or cabin heater fire.
Fuselage fire.
Hydraulic fire in main rotor pylon.
Electrical fire.
Smoke and fume elimination.
Fire during ground refueling.
Hydraulic power supply systems.
Hydraulic power supply system failures.
Utility hydraulic subsystems.
AFCS system/functions.

AFCS servo functions.
AFCS servo hardover.
Trim functions.
AFCS computer malfunctions/mode failures.
Total AFCS failure.
Ground resonance.
Flight control system.
Control couplings.
Damper system/failure.
Primary tandem servos operation/malfunction.
Approach and landing with a tail rotor control system malfunction.
Tail rotor or intermediate gearbox chip detector light.
Tail rotor gearbox or intermediate gearbox failure.
Tail rotor drive system failure.
Power train failure.
Pylon unsafe for flight light.

Introduce:
Simulated emergency procedures.
Simulated single engine failure during takeoff.
Simulated single engine approaches and landings (running and to a spot).
Simulated single engine failure above 50 feet AGL.
Autorotations with power recovery.
Obstacle takeoff, approach.
Partial/total AFCS failure.
High AOB maneuvers.

Practice:
Previously introduced FAM maneuvers.

Performance Standards. Per CH-53D NATOPS and MAG-24/CH-53D FRS Standardization Manual.

Prerequisites. FAM-123.

2. Instruments (INST)

a. Purpose. To develop proficiency in instrument flight procedures while using all installed navigation aids.

b. General

(1) All instrument stage flights should terminate with an instrument approach, when possible.

(2) Pilots may use the simulator for any instrument flight requirement; however, they may use it for no more than 50 percent of the total instrument syllabus requirements. The simulator will not satisfy the OPNAV night minimums requirement.

c. Crew Requirement. IP/RAC/CC (AO required for NS events).

INST-130 1.0 SCD S

Goal. Introduce basic instruments, TACAN approaches, and decision making IAW CRM techniques.

Requirement

Introduce:
Instrument flight checklist.
Instrument takeoff.
Level speed change.
Standard rate timed turns.
Vertical S-1 pattern.
Oscar pattern.
Turn pattern.
TACAN approach.
Point-to-point navigation.
Holding.
Decision making in the CH-53 IAW CRM techniques.
Troubleshooting strategies for degraded aircraft systems in IMC.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

External Syllabus Support. WST/APT.

INST-131 1.0 R,SCE S

Goal. Introduce partial panel flight, VOR/ADF procedures and adaptability/flexibility per CRM techniques.

Requirement

Introduce:
Partial panel flight.
VOR/ADF approach.
Holding.
Adaptability/flexibility in the CH-53E per CRM techniques.

Discuss:
Changes in mission from the briefing, crew-member incapacitation, and overcoming personality differences within the cockpit and cabin.

Practice:
TACAN procedures.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

External Syllabus Support. WST/APT.

INST-132 1.0 R,SCE S

Goal. Introduce ILS/localizer approaches and mission analysis per CRM techniques. Practice aircraft emergency procedures.

Requirement

Introduce:
ILS and localizer approaches.
Mission analysis in the CH-53E per CRM techniques.

Discuss:
The three stages of mission analysis, and standardized procedures.

Practice:
TACAN and VOR approaches.
Previously introduced emergency procedures.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

External Syllabus Support. WST/APT.

INST-133 1.0 SCD S

Goal. Introduce unusual attitudes and recovery procedures, PAR, ASR approaches and situational awareness considerations in the CH-53 per CRM techniques. Practice aircraft emergency procedures.

Requirement

Introduce:
Unusual attitudes and recovery procedures.
PAR and ASR approaches.
Situational awareness considerations in the CH-53 per CRM techniques.
Task fixation during an instrument approach with an emergency or degraded system.

Practice:
Aircraft emergency procedures.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

External Syllabus Support. WST/APT.

INST-134 1.0 S

Goal. Introduce radio failure, ATC procedures in IMC conditions and leadership principles per CRM techniques.

Requirement

Introduce:
HF Radio.
IFR departure.
COMM/NAV failure under IMC.
Single and/or dual engine missed approach.
IFR canned route (Flight planning).

Leadership principles in the CH-53E per CRM techniques. Command authority, crewmember relationships in the cockpit and cabin, and division of tasks.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

External Syllabus Support. WST/APT.

INST-135 1.5 A/S 1 CH-53E (N)

Goal. Introduce basic instrument procedures and instrument coordination patterns.

Requirement

Introduce:
Instrument checklist.
Instrument takeoff (ITO).
Attitude instrument flying.
Standard rate/half standard rate turns. Recovery from unusual attitudes.
Vertical S-1.
Oscar patterns.
Partial panel.
AFCS failure.
Inadvertent entry into IFR conditions.
Lost plane procedures.
Lightning strike.
Emergency descent.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

INST-136 1.5 MR,R,SCE A/S 1 CH-53E (N)

Goal. Introduce ADF, VOR and TACAN procedures.

Requirement

Discuss:
Approach minimums and helicopter-only approaches.

Introduce:
Time-distance checks.
ADF procedures.
Operation of the transponder modes.
VOR procedures.
TACAN procedures.
Point-to-point navigation.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

INST-137 1.5 R,SCE A/S 1 CH-53E (N)

Goal. Introduce precision approaches.

Requirement

Discuss:
BDHI/course indicator switches.
ILS/LOC and LOC back course approaches.

Introduce:
LOC/ILS procedures.
PAR procedures.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

INST-138 1.5 A/S 1 CH-53E (N)

Goal. Conduct IFR flight to an outlying airfield. Instrument progress check.

Requirement. Plan, file, brief, and fly an IFR flight away from home field.

Discuss:
Range performance charts in the CH-53E NATOPS Manual.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

INST-139 2.0 SCD 1 CH-53D (N)

Goal. Introduce CH-53D basic instrument, TACAN, and PAR procedures.

Requirement

Discuss:
Approach minimums and helicopter-only approaches.
Time-distance checks.
Inadvertent entry into IFR conditions.
Lost plane procedures.
Lightning strike.
Emergency descent.
BIM/IBIS blade systems.
BIM/Blade pressure caution light in flight.

Introduce:
Instrument checklist.
Instrument takeoff (ITO).
Attitude instrument flying.
Standard rate/half standard rate turns.
Recovery from unusual attitudes.
Vertical S-1.
Oscar patterns.
Partial panel.
TACAN procedures.
PAR procedures.
GPS procedures.
Point-to-point navigation.

AFCS failure.
Night Systems (if required).

Performance Standards. Per CH-53D NATOPS and MAG-24/CH-53D FRS Standardization Manual.

Prerequisites. INST-130, INST-133, and FAM-123.

3. Navigation (NAV)

a. Purpose. To navigate without radio navigational aids and identify positions by using charts and maps.

b. Crew Requirement. 141: IP/RAC/CC. 142: IP/RAC/CC/AO.

c. Ground Training. N-PFPS flight planning, GPS course as required by FRS.

NAV-140 1.0 S

Goal. Introduce use of N-PFPS, GPS and HNVS.

Requirement. Utilize N-PFPS to develop a route card for GPS programming to a minimum of six waypoints.

Discuss:
GPS set-up, programming, operation, and use.

Introduce:
Use of Global Positioning System (GPS) and HNVS operation.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

NAV-141 2.0 1 CH-53E

Goal. Introduce visual and GPS navigation.

Requirement. While using 1:250,000 and 1:50,000 maps, plan a navigation flight to a minimum of six terrain features using N-PFPS for planning. Pilots should conduct this flight between 200 and 500 feet AGL.

Discuss:
Navigation techniques.
Map preparation.
Checkpoint selection.
Boundaries/limiting features.
Wind correction in navigation.
Chart Update Manual (CHUM).
Portable Flight Planning Software (N-PFPS).
GPS operation/use.

Introduce:
In-flight route changes.
Use of Global Positioning System (GPS).

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

NAV-142 2.0 1 CH-53E NS

Goal. Practice NS navigation. Incorporate the use of N-PFPS and GPS.

Requirement. Plan and navigate to a minimum of six predetermined check points while using 1:250,000 and 1:50,000 scale maps.

Discuss:
Use of the FLIR.
Low level hazards.
Stress map interpretation.
Dead reckoning techniques.

Practice:
Use of GPS and N-PFPS.

Performance Standards. Per CH-53E NATOPS, MAWTS-1 NVD Manual and FRS Standardization Manual.

Prerequisites. FAM-122.

4. Formation (FORM)

a. Purpose. To develop parade and cruise formation principles and techniques.

b. Crew Requirement. 151: IP/RAC/CC. 152: IP/RAC/CC/AO.

FORM-150 1.0 R,SCE S

Goal. Introduce day formation principles.

Requirement

Discuss:
Aircraft lighting, closure rate, recovery from unusual attitudes, CRM, and comfort level.

Introduce:
Section takeoffs, cruise principles, crossovers, and section approaches.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

External Syllabus Support. WST/APT.

FORM-151 1.5 MR,R,SCE 2 CH-53E

Goal. Introduce parade, cruise formation and section landings.

Requirement

Discuss:
- Visual checkpoints for formation position.
- Formation considerations.
- Parade and Cruise formations.
- Cruise turn principles.
- Loss of visual contact.
- Break-up and rendezvous.
- Over-run procedures.

Introduce:
- Section takeoffs, parade position, crossovers, breakups, rendezvous, lead changes, landings, cruise formations, and IMC break-up.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisite. CAL-161 if conducted to a CAL site.

Range Requirements. Approved CAL/MAL site if conducted to a CAL site.

FORM-152 1.5 2 CH-53E NS

Goal. Introduce NS formation procedures and section CAL landings.

Requirement

Discuss:
- Aircraft lighting.
- Closure rate.
- CRM and comfort level.
- NS visual checkpoints for formation position.

Introduce:
- Night section takeoffs.
- Cruise principles.
- Crossover.
- Lead changes
- Section landings.

Performance Standards. Per CH-53E NATOPS, MAWTS-1 NVD Manual, and FRS Standardization Manual.

Prerequisite. FAM-122, FORM-151, CAL-162, and CAL-163.

Range Requirements. Approved CAL/MAL site.

5. Confined Area Landings (CAL)

a. Purpose. Develop takeoff and landing skills in confined areas.

b. Crew Requirement. 161/162: IP/RAC/CC..163: IP/RAC/CC/AO.

CAL-160 1.0 SCD S NS

Goal. Introduce night systems CAL approaches.

Requirement

Discuss:
Instrument scan requirements.
Crew coordination.

Introduce:
FLIR system, operation and utilization (53E).
NS HUD operation and utilization (53E).

Performance Standards. Per CH-53 NATOPS, MAWTS-1 NVD Manual and FRS Standardization Manual.

External Syllabus Support. WST/APT.

CAL-161 1.5 MR,R,SCE,SCD 1 CH-53

Goal. Practice precision approaches and introduce their application to CALs.

Requirement

Discuss:
Landing gear system/limitations.
Dynamic rollover.
Slope landing technique/limitations.
Loss of visual reference during landing.
Power settling.
Settling with power.
Main and tail rotor clearance factors over sloping or uneven terrain.
LZ considerations.

Practice:
Precision approaches to confined areas.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. N/A. FAM-124 for CH-53E to D Series Conversion POI individuals.

Range Requirements. Approved CAL/MAL site.

CAL-162 1.5 SCD 2 CH-53

Goal. Introduce section CAL approaches and landings.

Requirement

Discuss:
Hazards associated with section CAL landings.
CRM.

Introduce:
Day Section CAL approaches and landings.

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. CAL-161 and FORM-151. CAL-162 may be flown in conjunction with FORM-151.

Range Requirements. Approved CAL/MAL site.

CAL-163 2.0 1 CH-53E NS

Goal. Introduce NS confined area landings.

Requirement

Discuss:
Precision obstacle approaches.
CRM/comfort level.
Aircraft lighting.

Practice:
Night CAL approaches and takeoffs with NS.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisite. FAM-122,CAL-161 and based off of simulator availability SCAL-160.

Range Requirements. Approved CAL/MAL site.

6. External Loads (EXT)

a. Purpose. To develop skills necessary for external cargo operations.

b. General. Prior to EXT-170, refer to operational and safety considerations discussed in the appropriate NATOPS Flight Manual and MCRP 4-23E and Multi-Service Helicopter Sling Load Manual. Discuss and become familiar with all aspects of CRM applicable to external operations as described in the appropriate CH-53 NATOPS Flight Manual.

c. Crew Requirement. IP/RAC/CC/AO.

d. External Syllabus Support. Helicopter Support Team (HST).

EXT-170 1.0 SCD,SCE 1 CH-53

Goal. Introduce single point external cargo operations.

Requirement

Discuss:
Precision hover.
Flight envelopes with external loads.
Weight and balance calculations.
Power settling/settling with power.
Operational power checks.
Single point performance checks.
Single point suspension system/operations.
Cargo pickup and delivery procedures.
Power available/required considerations.
Cargo release modes.
Cargo jettison procedures.
Hook open advisory light in flight.
DSEN failure.

Introduce:
Cargo pickup and release procedures.
CRM.
Voice signals/standardized terminology.

Performance Standards. Perform five hookups and releases, or until proficiency is demonstrated per CH-53 NATOPS, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. CAL-161. FAM-124 for CH-53E to D Series Conversion POI individuals.

Range Requirements. Approved CAL/MAL site.

External Syllabus Support. HST and single point load.

EXT-171 1.0 SC E 1 CH-53E NS

Goal. Introduce single point external cargo operations utilizing NS.

Requirement

Discuss:
CRM.
Comfort level.
NS scan techniques.
Aircraft emergencies.
Cargo jettison procedures.
Power requirements.
Aircraft lighting.
Landing zone markings.

Introduce:
External cargo pickup and delivery utilizing NS.

Performance Standards. Perform five hookups and releases, or until proficiency is demonstrated per CH-53E NATOPS,

MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. CAL-163 and EXT-170.

Range Requirements. CAL/MAL site.

External Syllabus Support. HST single point load.

EXT-172 1.5 MR,R,SCE 1 CH-53E

Goal. Introduce dual point procedures.

Requirement

Discuss:
- Dual point suspension system.
- Dual point suspension system operations/limitations.
- CRM.
- Emergencies encountered during external operations.
- Forward/Aft hook open advisory light in flight.
- Pilot induced/assisted oscillations.
- Cargo jettison.
- CG load indicator system.

Introduce:
- External cargo pickup and release procedures utilizing the dual point external system.

Performance Standards. Perform 5 hookups and releases, or until proficiency is demonstrated per CH-53E NATOPS, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. CAL-161.

Range Requirements. CAL/MAL site.

External Syllabus Support. HST and dual point load.

EXT-173 1.5 R,SCE 1 CH-53E NS

Goal. Introduce dual point procedures at night utilizing NS.

Requirement

Discuss:
- NS considerations.
- CRM
- Comfort level.
- Scan techniques.
- Aircraft emergencies.
- Cargo jettison procedures.
- Aircraft lighting.
- Landing zone markings.

Introduce:
External cargo pickup and release procedures utilizing NS.

Performance Standards. Perform 5 hookups and releases or until proficiency is demonstrated per CH-53E NATOPS, MCRP

4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. CAL-163 and EXT-172 (53E).

Range Requirements. CAL/MAL site.

External Syllabus Support. HST and dual point load.

7. Terrain Flight (TERF)

a. Purpose. To introduce skills necessary to perform TERF maneuvers safely. Emphasize the importance of crew coordination, comfort level, and standard terminology.

b. General

(1) T&R Program Manual requires a designated TERF instructor for all initial TERF flights.

(2) CH-53 TAC Manual contains all maneuver descriptions, and the current MAWTS-1 Helicopter Academic Support Package explains all maneuvers. The MAWTS-1 Academic Support Package contains the prerequisite academic lectures that support the TERF stages.

(3) T&R Program Manual establishes all currency requirements/TERF altitude and airspeed limitations.

(4) The RAC shall complete academic training prior to commencing the TERF flight syllabus.

c. Crew Requirement. IP/RAC/CC/AO.

d. Ground Training. Pilots shall complete "Terrain Flight Introduction" in the MAWTS-1 Academic Support Package prior to the flight.

TERF-180 1.5 R,SCE,SCD 1 CH-53

Goal. Introduce TERF maneuvers. Demonstrate TERF navigation.

Requirement

Discuss:
TERF maneuvers.
CRM.
Comfort level.
Reduced reaction time.
Emergency procedures at low altitudes.
Climb-to-cope.
Standardized terminology.
Common mistakes.

Hazard maps.
Currency requirements.
Blade walk-around.

Introduce:
Operational power checks.
Masking and unmasking.
TERF turns.
Rolls, bunts.
Quick stops.
Low level/contour profiles.
Using a 1:50,000 scale map, demonstrate TERF navigation.

Performance Standards. Per CH-53 NATOPS, ANTTP 3-22.3-CH53, and FRS Standardization Manual.

Prerequisite. FAM-124 for CH-53E to D series conversion POI individuals.

Range Requirements. TERF maneuver area/route and CAL/MAL site.

TERF-181 1.5 1 CH-53E

Goal. Introduce TERF navigation. Practice TERF maneuvers.

Requirement

Discuss:
CRM.
Comfort levels.
Common terms.
Obstacle clearance.
Low altitude emergencies.

Practice:
TERF maneuvers and contour profile navigation.

Performance Standards. Per CH-53E NATOPS, ANTTP 3-22.3-CH53, and FRS Standardization Manual.

Range Requirements. TERF maneuver area/route and CAL/MAL site.

8. Review (REV)

a. Purpose. To demonstrate proficiency in performing duties as a core skill introduction complete copilot per CH-53 NATOPS and appropriate pubs.

b. Crew Requirement. IP/RAC/CC.

c. Ground Training. RACs should complete CH-53 NATOPS closed book examination prior to the flight.

REV-190 1.5 R,SCE,SCD 1 CH-53

Goal. Review Core Skill Introduction training.